REPORT

ON THE

PULNI MOUNTAINS,

~~SERIES OF SKETCHES~~

BY

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21st Regiment N. I.

MADRAS:
PRINTED AND PUBLISHED BY H. SMITH, AT THE FORT SAINT GEORGE GAZETTE PRESS.

1862.

915.48
H218P

1661

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REPORT ON THE PULNI MOUNTAINS TO ACCOMPANY THE SERIES OF SKETCHES TAKEN BY MAJOR D. HAMILTON, 21ST REGIMENT N. I.

1. The Pulni mountains are situated between 10° and 10°15″ north latitude, and 77° 20′ and 77° 55″ east longitude in the Madura District. They extend in a north-easterly direction from the great mass of mountains known as the Western Ghauts, to which they are connected by an Isthmus, or ridge of hills about 8 miles in width; being completely isolated on every other side. To the north are the Districts of Coimbatore and Trichinopoly; those of Madura and Tanjore lie to the east; Tinnevelly and Travancore to the south and west.

2. These mountains were surveyed about twenty-five years ago by Captain Ward of the Surveyor General's Department; he states their length from east to west to be 54 miles with a medium breadth of 15 miles, and their superficial area 798½ square miles; this includes Anjeenaad, now a dependency of Travancore. Captain Ward reckons the area of the Anjeenaad hills to contain 231½ square miles which leaves 567 square miles for the Pulnis Proper. They are divided by the hill people into two ranges: the higher, and the lower range. Mr. T. Clarke of the Board of Revenue, late Collector of Madura, in his Report to Government, dated May 1853, estimates the average elevation of the plateau of the higher Pulnis at 7,000 feet above the level of the sea; but Captain Ryves of the Engineers, who was on the Pulnis in 1859, and took the altitudes with an aneroid barometer, makes their mean height 7,500 with peaks and ridges running up to 8,000 and 8,500 feet, and the edge of the slopes above the precipices from 6,000 to 6,500 feet. He estimates the area of the upper plateau to be about 105 square miles. The plain from which the Pulnis rise is, according to Dr. White, 1,100 feet above the level of the sea.

Vide Madras Literary Journal, Volume V, (1837).

3. With the sketches accompanying this Report, I have entered fully into a general description of the appearance of the higher range.

4. The principal rocks of these hills are immense masses of gneiss interstratified with quartz and traversed by veins of felspar, in places projecting above the surface firm and unaffected by the weather, but more generally decayed to a considerable depth, and occasionally so disintegrated that it is reduced to a gritty clay. The grassy tops of the hills are covered with black soil varying from a few inches to several feet in thickness, the sub-

Vide Dr. White's Report, Volume V, Madras Literary Journal.

soil where the black prevails is a yellowish clay, in some parts of an ochre color, but generally of a darker shade.

5. There is an abundant supply of water on the higher range throughout the year, in some of the valleys there are extensive morasses. According to Captain Ward, "On these mountains are the sources of upwards of thirty large streams, which uniting, form eleven respectable rivers." In the swamps near Kudaikarnal, peat of very good quality has been found.

6. The only made Ghaut up to the higher Pulnis on the southern side is that from Perreakolum to the settlement of Kudaikarnal. There are six other passes to the higher Pulnis, but they are unmade, being tracks up which a pony can scramble with difficulty, one on the western side from Davadanaputty to Shembaganoor and Kudaikarnal, and five on the northern, of which, one from Pulni to Pombarry, another from Pulni to Vilputty, and a third from Pulni viâ Rultambuddy and Manavanoor are the most frequented: of these the Devadanaputty pass is the only one ever likely to be made practicable for wheeled carriages. Since the Perreakolum pass has been constructed, the other passes have become nearly deserted. Traders with cattle from the north of the mountains preferring to come all the way round, to ascending the rugged paths in that direction.

7. The villages of the higher Pulnis are: to the west, Ettoor or the eight villages, so named from its originally consisting of a collection of eight villages, but two have since been abandoned, the remaining six are Manavanoor the principal village, Coomboor, Counjee, Poondee, Poloor, and Calavary, their population being about 1,648 souls. To the north-east, Pombarry with its four hamlets; old and new Pootoor, Pullangee and Kokul. Pombarry is the largest village on the higher Pulnis, its population amounting to about 1,224 souls; to the east is Vilputty, and to the south the small hamlet of Shembaganoor, consisting of only four houses. I was unable to ascertain the number of inhabitants in the village of Vilputty; but in 1853, it had a population of 364 souls, and appears to have increased but little since then. All these villages are situated at an elevation of from 5,000 to 6,400 feet above the sea. Nilaolungum, Vellacavvy, and Adikaree, are hamlets on the southern spurs of the Western Pulnis, but they hardly come under the denomination of villages on the higher range.

8. The entire population of the higher Pulnis may be estimated as not exceeding 3,500, consisting of a mixed race, viz., Koonoovers, Poliars,

Vadogars, Maravers, Chetties, and a few Pariahs. Mr. T. Clarke, whose long acquaintance with these mountains constitutes him an excellent authority, considers the Poliars to be the aborigines, and states that they were until lately the predial slaves of the Koonoovers, who are the most numerous class on the hills. The origin of the Koonoovers is obscure, they declare themselves to be Vellalers of the Coimbatore District, but adduce nothing to support this tradition. Their customs differ from the Vellalers of the plains, and those of the lower range differ much and have no connection with those of the higher. Captain Ward in his memoir of the Pulnis, published in the Madras Journal of Literature and Science, Volume VI, mentions that the Koonoovers are supposed to have resorted to the Pulnis from the plains about four centuries ago. The Poliars were until recently much oppressed by the Koonoovers, but, like the Todas treatment of the Kotas on the Nilgiris; on special ceremonial days or on the breaking out of any fatal disease "the Koonoovers adore and worship "them (the Poliars) under the idea that they have dealings with, and are able to propitiate, evil spirits;" the remaining classes are all emigrants from the plains. The Chetties are the traders and are found in considerable numbers on the hills; the other inhabitants are occupied in cultivation, they are the dupes of the traders from the plains, from whom they purchase goods and occasionally borrow money at exhorbitant prices, and interest. The Ryots dread a civil process more than death, the sight of a notice being sufficient to force them to yield to the most unjust demands. Many of the inhabitants are fine, robust, powerful men, but they have all the appearance of being a mixed race; and there is no distinct stamp of character such as is found amongst the Todas and Kotas of the Nilgiris and the Karders of the Annamallies. Mr. Clarke mentions in his Report that "The hill people are moderate, but at the same time not very parti- "cular in their eating; there is scarcely any species of animal the poorer "classes will not eat, not excepting rats, mice and monkies, and it matters "not whether the animal has died a natural death or been killed: the "higher classes are more scrupulous, not eating the flesh of animals that "have died, nor the wild ox (Bison); rice, barley and wheat is their staple "food. The favorite drink of the Poliars is the toddy of the Sago-palm, "which grows in great profusion on the lower range; they also eat the "pith of the tree, ground to powder, with honey, jack fruit, and wild "roots; the toddy is very sour and intoxicating. The Koonoovers of the "lower hills are also much given to strong drink. The people of the "higher range are more temperate; opportunities of getting liquor not

"being so great, as it has to be procured from the plains." The men generally, though not always, wear turbands, their dress consists of a cloth round their loins, and either a coarse cotton cloth reaching from the shoulders to the knees, or a common black cumbly. They bare themselves to the waist as a mark of respect when in the presence of a superior.

Vide Sketch No. 25.

The women wear a cloth knotted in front over the right shoulder, reaching to the knees, fastened round the waist by a broad band of either blue or white cloth, they occasionally ornament their left arms with bangles; but I was informed that they are never worn on the right arm. Though each village has its own washermen, the inhabitants are by no means cleanly in their dress, especially the women. The young children go entirely naked; I saw groups of them at Pombarry warming themselves in the early sunshine, the ground and roofs of the houses around them being still white with hoar frost.

9. The hill people appear to be quite as ignorant, indolent, apathetic, and suspicious, as the Ryots of the plains, they evidently considered that I had something to do with the Revenue Department, and had come to ascertain how much could be squeezed out of them. I consequently found it almost impossible to obtain any correct information from them, their great object being to represent themselves hopelessly poor. On one occasion I was told that the cattle belonging to the village amounted only to thirty, happening to be in the village in the evening when the cattle were returning from the mountains, I counted seventy head, and this was not their whole stock. The following circumstance affords an instance of their suspicious character:—As the wheat they cultivate is of very inferior quality, the Collector of the District went to the trouble of procuring some superior seed and distributed it to the hill men, directing them to sow it. On inquiring afterwards whether it had succeeded, he was informed that it would not grow on the mountains; this answer not being satisfactory, further inquiries were instituted when it appeared, that though they had certainly sown the wheat as directed, they *had pounded* it first for fear it should take root, "for" they argued "if we grow better grain we shall be more heavily taxed, so what good will it do us."

10. The whole cultivation around the villages is in fields, cut into terraces, on the spurs and slopes of the mountains, laid out with considerable skill and much labor. I had not an opportunity of visiting the rice fields lower down the mountains, but they are also terraced; fields near the villages are kept with great care and neatness, and the trees around being preserved, add greatly to the picturesque appearance of the locality.

The women are employed in weeding and gathering the crops, the men in ploughing, sowing, and attending to the irrigation channels. The products of the higher range are garlic, rice, mustard, wheat, barley, vendium, tennay, and a few potatoes; of these, garlic, wheat, barley, vendium, tennay, vasauboo, or sweet flag, and potatoes are grown in the fields near the villages. Garlic is the staple product being the chief article of export, and is of excellent quality; very great attention is paid to its cultivation, it yields two crops in the year; the other produce, with the exception of a small quantity of wheat, vendium and sweet flag, is grown for home consumption. The wheat and barley are of very inferior quality, the former is of the bearded kind and when ripe is about 18 inches high. The few potatoes I saw in the gardens of the distant hill villages, were poor and small, no doubt from want of care in their culture, for at Kudaikarnal and Shembaganoor where they have been properly cultivated, potatoes are produced equal if not superior to those grown on the Nilgiris; and with care, wheat, barley and oats of a far better quality, might be produced on the higher range. It is worthy of note that the hill people are fully alive to the advantage of manure, which is carefully preserved, and it is a remarkable fact that they *use it in a liquid form;* they are perfect adepts at irrigation, constructing dams at the most advantageous spots, and conveying the water by means of narrow channels along the steep rugged sides of the mountains to their fields. I observed a channel leading to the village of Manavanoor, which must be some miles in length. Their agricultural implements are similar to those on the plains, in fact they are nearly all obtained from the low country, they consist of the plough, harrow, hatchet, momaty or native hoe, and a small reaping sickle.

11. The hill people possess considerable herds of cattle, the buffaloes and oxen are similar to those of the plains. The cows are stated to give very little milk, Captain Ward considers this to be from "want of salt of which the grass and herbs of the hills appear to be destitute;" but the cows certainly yield as much milk as the same breed on the plains, and if I may judge from the quantity of milk obtained from well-bred cows at Kudaikarnal, the cause lies in the degenerate breed of the cattle and not in the pasture. The oxen and buffaloes are used for agricultural purposes,

Note.—A most destructive animal to the cultivation on the hills is the porcupine; in the gardens at Kudaikarnal they commit great havoc, they seldom appear except at night and are difficult to get rid of. On the slopes of the mountains, deer and wild hog commit occasional depredations in the fields, but on the higher range they are not so numerous as to do any serious damage to the crops.

It is strange that neither crows nor sparrows have yet found their way to the high range, though so common in the low country.

and some of the former in carrying burdens. Compared with the fine breed of Toda buffaloes on the Nilgiris, the wretched Pulni buffaloe appears a very insignificant animal; a few Toda buffaloes might be imported with great advantage to the Hill Tribes if they could be induced to rear them; but, as with the wheat, it might be difficult to persuade them that there was not some hidden motive in attempting to improve their breed of cattle.

12. There is a considerable traffic carried on between the hills and the plains; large droves of ponies, donkies and of bullocks, are continually met with travelling to and from the different hill villages. The chief article of import to the hills is salt; cloth and other necessaries are also bought up, which are bartered for produce of the hills, especially garlic. The whole of the traffic is carried on by Chetties and Lubbays, who make enormous profits by the trade; until very lately the hill men could never be induced themselves to carry their produce to the plains; but I was informed when at Madura, that parties had been met taking their garlic to market.

13. It has already been stated that there is only one made-pass up to the higher range, viz., from Perreakolum to Kudaikarnal, which at the best is but a mere bridle path, and does not extend beyond the settlement. The only communication between the hill villages, is by cattle tracks, in many places absolutely dangerous and in others almost impassable, from being worn into deep ruts and nullahs by the rains. The wonder is how loaded animals ever reach their destination; what would be an ordinary day's journey along a made-road or path, now occupies two if not three days.

14. Having resided on the Pulnis for only a short period, the greater portion being in the height of the north-east monsoon, my personal knowledge of the climate is not extensive. It appears to be milder and of more even-temperature than that of Ootacamund, though the altitude of the sites of the houses at Kudaikarnal is within a few feet of that of the Ootacamund lake. Though a less amount of rain falls than on the Nilgiris it is more equally distributed throughout the year; consequently the Pulnis are never subject to those long droughts that at times occur on the Nilgiris.

15. During my stay at Kudaikarnal, I kept a register of the temperature from two thermometers, one placed in the open verandah, and the other in a room without a fire. The Register which is attached shows a remarkable evenness of temperature.

16 Mr. V. Clarke in his Report has the following remarks regard-the climate. "The year is divided into two seasons, the cold season, "similiar to the autumn of the south of France, may be said to set in "from December and terminate in March; whilst the monsoon season, "resembling a mild autumn in the south of England, occupies the "remaining months.

"With reference to the climate of the higher hills in particular, the "following, as far as I am able to learn, may be considered a pretty fair "estimate :—

"January is uniformly fair, clear and dry. The nights are very "cold and attended with frost in the valleys. The same remarks will "apply to February, except that the frost is stronger, and in March it "disappears, when the weather becomes milder and there are a few heavy "showers. Towards the close of April the wind begins to vary from "the north-east, and finally settles in the south-west, when the air "becomes mild and balmy. May is the warmest month, but the heat "is often relieved by the fall of rain in torrents, intermingled with hail, "ushering in the south-west monsoon, which occurs in the early part of "June, and continues with greater or less constancy throughout July "and August, when the weather on the lower hills is comparatively dry "and fine. September and October are uncertain months, depending "on the state of the south-west monsoon, which, if begun early and "exhausted, renders the weather fine, warm and pleasant; but if defi-"cient in previous rain, a good deal of mist and drizzle generally prevail. "Towards the end of September the wind again begins to shift round "to the north, when the weather becomes suddenly colder. Mists and "fogs are common throughout the year, some gales of wind occur once "or twice a year generally about the changes of the season, but thunder-"storms are of rare occurrence."

17. As an instance of the salubrity of the climate, I may mention that although my servants were much exposed during the monsoon to the inclemency of the weather, yet with the exception of one case of cold and slight fever, they were perfectly healthy, which I know from experience would not have been the case at Ootacamund under similar circumstances.

18. The Pulni mountains are so little known, that many people are apt to confound the western or higher with the eastern or lower range, and declare them to be decidedly feverish during the hot months; this certainly is the case in portions of the lower Pulnis, but the higher

range is without a doubt as healthy, and free from fever, as Ootacamund itself, and moreover possesses a milder and more genial climate.

19. Several families belonging to the American Mission have for many years been in the habit of residing at Kudaikarnal at all seasons of the year. One family to my knowledge passed two hot seasons on the hills without returning to the plains. Some of the Natives from the low country at Kudaikarnal have remained there continuously for years; one a resident of upwards of eight years informed me that he had never heard of a case of jungle fever contracted at Kudaikarnal.

20. I believe the sites of most of the hill villages are also free from fever, for though many cases occur in them the fever is contracted on the lower slopes and valleys where the rice cultivation is situated, it being the custom for all the inhabitants to take their turn of tending this cultivation, to do which, they are obliged to remain near their fields living in temporary huts.

21. Should it hereafter be deemed expedient to establish a European Cantonment or sanitarium on these mountains, there is an excellent site with wood and water in abundance to the west of Kudaikarnal. The only other suitable spot for a Cantonment is on the plateau of Pootoor, but it is at least a thousand feet lower than Kudaikarnal with the valley of Poombarry on one side, and that of Kokul on the other; neither of these valleys are free from fever. Wood and water are obtainable in the vicinity and the site may prove healthy, it is however untried, whereas the salubrity of Kudaikarnal is fully established.

Vide Sketch No. 9.
Vide Sketch No. 13.

22. Kudaikarnal is about 112 miles (1) from Trichinopoly, the the Head Quarters of the Southern Division, 65 miles (2) from the town of Madura, and 52 miles (3) from Dindigul, 143 miles (4) from the nearest point of the Eastern, and 90 miles from the Western Coast; Tuticorin is the most convenient port on the eastern side. The proposed line of Railway from Negapatam to Tuticorin, when completed, will pass through Madura.

(1).—To Dindigul.. 60
Perreakolum 35
Tope..... 5
Kudaikarnal 12
112

(2).—Perreakolum 48
Tope..... 5
Kudaikarnal.. 12
65

(3).—Perreakolum 35
Tope..... .. .. 5.
Kudaikarnal... 12
52

23. There is no direct communication between the Pulnis and the Western Coast established, owing to the hilly country and

(4).—Madura to Autancurray	78
Poreakoluan...	65
	143

unhealthy jungle intervening; the only practicable route now available is viâ Pulni and Coimbatore, and from thence by rail to Ponany; but I understand a road is now being opened up between Cumbum and Trevandrum viâ Cottyum—the foot of the hills will be only 30 miles from this road and Kudaikarnal 12 more.

24. The great drawback to the opening out of the Pulnis as a settlement or Colony at present, is the difficulty of access. Notwithstanding this, I think, the numerous advantages these magnificent mountains offer need only to be known to induce enterprizing Europeans to settle there.

25. The best Coffee ground I am told is on the lower Pulnis. Mr. DeFonclair has a small plantation there near Perryoor, at present the only one on the Pulnis, but besides the great valley of Pombarry there are several other spots on the higher range well adapted for its growth.

26. Dr. Cleghorn, Conservator of Forests, on his visit to the Pulnis in 1859, left a few tea seeds to be sown at Kudaikarnal; on my departure from the hills in 1860, the plants raised from these seeds were an inch or two above the ground and appeared fresh and healthy. I have since heard that they are thriving exceedingly well.

27. I much regret that during my stay in China I had no opportunity of visiting the tea country; but from the little information I could gather the similarity of the mountains in soil, vegetable productions, and climate to the Pulnis is so close, that I have very little doubt tea culture will be found to succeed admirably on these hills.

28. To judge from the gardens at Kudaikarnal and the cultivation round the hill villages, the soil is evidently very productive, and from the facility of storing water in the valleys a quantity of land could be turned to good account in growing excellent wheat, barley, and other cereals. Very superior potatoes are now raised in the gardens at Kudaikarnal and Shembaganoor—their culture might be increased to any extent. A gentleman of the American Mission informed me that New Orleans cotton had been tried and succeeded at an elevation of 5,000 feet above the level of the sea.

29. Every European fruit and vegetable that grows at Ootacamund and Coonoor on the Nilgiris would succeed equally well at Kudaikarnal and Shembaganoor.

30. The sweet wild strawberry, however, which grows abundant on the Nilgiris, I did not meet with on the Pulnis, but I saw a few plants of red or tasteless kind.

31. There are extensive and good grazing grounds entirely unoccupied. Horned cattle thrive well—sheep and goats equally so—but sheep should be housed at night in a warm building with a boarded floor. This latter precaution should be particularly borne in mind, for it was neglected, I believe, on the Nilgiris when sheep-farms were attempted there, and they failed in consequence.

32. I was told that horses did not do well on the hills, the grass being too coarse for them. The four or five ponies I had with me during my stay on the mountains, however, kept in good condition.

33. Sir Charles Trevelyan in his Minute of February 1860, in reference to the upper plateau, states, "It is an important fact that as "regards much of the largest portion of this tract there is no claim to the "soil which can interfere with the most absolute freehold; the villages "are few and far between, and the rights of the inhabitants are con-"fined to the land they cultivate."

34. I had not an opportunity of ascertaining whether a good clay for brick-making was obtainable on the Pulnis; it probably is not in the immediate neighbourhood of Kudaikarnal, or it would have been discovered ere this.

35. Stone is found in abundance at Kudaikarnal from the size of an ordinary brick to one or two cubic feet and even larger, it is easily worked, and has been used for building purposes by the Missionaries; it is considered by them a good material, though stated by others to absorb too much moisture and never to dry thoroughly.

36. Timber for building purposes is obtainable from the woods on the plateau and the slopes on the mountains. Labor at present is tolerably cheap and plentiful. Masons cost from 5 Annas to 8 Annas per day. Carpenters the same rate, and coolies from 2 to 2½ Annas; at present all supplies have to be brought up from the low country, there being no bazar at Kudaikarnal.

37. In concluding my report, I would again repeat the suggestion conveyed in my letter of the 1st March 1860, that measures be at once taken to plant on these mountains Australian Acacias, gum and other trees. A considerable supply of young plants and suckers can be obtained from the gardens of the settlements; the cost of transplanting would be very trifling compared with the advantage that would accrue hereafter.

38 I lately sent to the Government Gardens at Ootacamund some seeds of the common China fir (Pinus Sinensis). If this tree succeeds, as I anticipate it will, some seeds or plants might be sent to the Pulnis, as the fir, besides being ornamental, is useful for building purposes or for firewood.

39. Lieutenant Beddome, Assistant Conservator of Forests, visited the Pulnis officially in 1857, and his report on their vegetable products has already been published by Government.

(Signed) DOUGLAS HAMILTON, *Major*,

21st Regiment N. I.

Register of the Thermometer taken at Kudaikarnal on the Pulni Mountains.

Date.	In open Verandah.												In a room without a fire.												Remarks.
	Morning.						Noon.			Evening.			Morning.						Noon.			Evening.			
	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	
1859.																									
Oct. 13th	5	0	52½	8	0	60	12	0	64	7	0	56	..	..	....	5	0	61	8	0	60	12	0	62	7	0	61½	..	..	....	Morning cloudy, with appearance of rain—a shower in the afternoon—evening clear.
„ 14th	5	30	54	10	0	61	12	0	62	5	0	60	8	30	55	5	30	62	10	0	61	12	0	61½	5	0	63	8	30	61	Clear at daylight, mist and fog soon after—cleared off in the afternoon—night fine.
„ 15th	5	30	55	10	15	62	12	0	60	5	0	59	9	0	56	5	30	61	10	15	61	12	0	61½	5	0	62	9	0	60	Clear morning, cloudy at 10 A. M.—rain for two hours in the afternoon—evening cloudy
„ 16th	6	0	53	..	...	.....	12	0	69	5	0	60	9	0	55	6	0	60	9	30	62	12	0	63	5	0	62½	9	0	61	Bright sunshiny morning—cloudy at noon—dense fog in the afternoon—night clear.
„ 17th	5	0	55	8	0	60	12	30	68	7	0	59	8	30	57	5	0	61	8	0	60	12	30	64	7	0	63½	8	30	63	Morning overcast, strong wind from the N.E.—Noon cloudy, occasional sunshine—night fine with passing clouds.
„ 18th	5	30	56	8	0	56	12	30	62	...	...	.....	9	0	58	5	30	62	8	0	62	12	30	63	...	...	....	9	0	62	Morning cloudy — strong wind and drizzling rain during the day.

,,	19th	6	0	54	10	0	62	12	0	61	4	0	60	8	30	58	6	0	62	10	0	64	12	0	63	4	0	63	8	30	62	Fine clear morning, strong wind from the N.E.—fog at noon, sunshine at intervals during the afternoon—rain in the evening.
,,	20th	5	30	55	8	0	62	12	0	60	4	0	60	9	0	56	5	30	61	8	0	62½	12	0	62	4	0	63	9	0	61	Heavy clouds in the morning, wind strong from the N. E.—fine at noon—heavy rain in the afternoon—evening fine.
,,	21st	5	30	55	8	0	60	12	0	59	4	30	58½	8	30	57	5	30	61	8	0	61	12	0	61½	4	30	62	8	30	61	Morning fine—misty at noon—rain at night.
,,	22nd	7	0	54	..	..	....	12	0	58	4	0	57	9	30	54	7	0	60	..	..	....	12	0	60½	4	0	62	9	30	60	Dense fog in the morning—heavy rain the greater part of last night—noon and afternoon fine—fog in the evening.
,,	23rd	6	0	53	8	0	57	12	0	58	4	0	56	8	30	56	6	0	59	8	0	58	12	0	60	4	0	60	8	30	59	Fine till noon—wet afternoon—very heavy rain for several hours set in after dark.
,,	24th	6	30	52	8	0	54	12	0	57	..	..	....	9	0	56	6	30	59	8	0	58	12	0	59½	..	..	....	9	0	59	Cloudy day—slight rain in the afternoon.
,,	25th	6	0	54	8	0	57	12	0	59	4	30	58	9	0	56	6	0	59	8	0	59	12	0	61	4	30	61½	9	0	59½	Morning drizzling rain and fog—noon cloudy, strong wind from N. E.—occasional sunshine in the afternoon—evening fine.
,,	26th	6	0	53	8	0	54	12	0	59½	..	..	....	10	0	54	6	0	59½	8	0	60	12	0	60	..	..	....	10	0	59	Dense fog—strong N. E. wind, cleared up at noon—fine starlight night.
,,	27th	5	30	52	8	0	58	12	0	63	4	0	60	8	30	58	5	30	58	8	0	60	12	0	62	4	0	62	8	30	61	Fine bright sunshiny day, strong N. E. wind blowing—slight rain in the evening.
,,	28th	5	30	55	8	0	58	12	0	59	4	0	58	9	30	56	5	30	60	8	0	60	12	0	61	4	0	62	9	30	60	Fog and rain all day.
,,	29th	6	0	55	8	0	64	12	30	60	5	0	57	8	30	56	6	0	61	8	0	61	12	30	62	5	0	62	8	30	60	Clouds and sunshine with occasional mist in the morning—stormy afternoon and night.

Register of the Thermometer taken at Kudaikarnal on the Pulni Mountains.—(Continued).

Date.	In open Verandah.												In a room without a fire.												Remarks.
	Morning.						Noon.			Evening.			Morning.						Noon.			Evening.			
	Hours.	Minutes.	Degrees	Hours.	Minutes.	Degrees	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	
1859.																									
Oct. 30th	6	15	54	8	0	57	12	30	58	4	0	58	9	0	56	6	15	61	8	0	59	12	30	61	4	0	61	9	0	60	Stormy, with rain in morning—sunshine and showers during the day—stormy night.
„ 31st	5	30	55	8	0	56	12	0	59	4	30	55	9	0	56	5	30	60	8	0	59	12	0	59	4	30	60	9	0	59	Morning fine with strong wind—heavy rain set in at half-past 10 A.M., and continued the whole day.
Nov. 1st	5	0	54	8	30	54	..	..	....	5	30	57	9	0	56	5	0	60	8	30	59	..	..	....	5	30	60	9	0	59	Rain till noon, ceased for an hour or two—wet afternoon till 5 P.M., commenced raining again at 7 P.M.
„ 2nd	6	0	55	8	0	57	12	0	62	4	30	57	9	30	56	6	0	59	8	0	59	12	0	62	4	30	61	9	30	60	Morning sunshiny and clouds—very heavy rain from 11 till 4 o'clock—drizzle and mist rest of the day.
„ 3rd	6	0	54	8	0	57	12	30	62	5	0	60	8	0	58	6	0	59	8	0	59	12	30	62	5	0	62½	8	0	61	Fine day—rain set in at dark, and continued all night.
„ 4th	6	30	56	8	0	57	12	30	59	..	..	....	9	0	57	6	30	61	8	0	59	12	30	61	..	..	....	9	0	61	Cloudy morning with fog at noon—heavy rain in the afternoon, which continued all night.

„	5th	6	0	54½	8	0	55	12	30	57	5	0	56	9	0	56	6	0	61	8	0	59	12	30	60	5	0	61	9	0	60	Fog in the morning and rain since noon, set in a wet night.
„	6th	6	0	56	8	0	56	12	0	56	4	30	55	8	30	56	6	0	60	8	0	60	12	0	60	4	30	60	8	30	59	Heavy showers and fog during the day.
„	7th	6	0	55	8	0	58	12	0	55	5	0	55½	9	0	55	6	0	59	8	0	59	12	0	59	5	0	59½	9	0	59	Much rain during last night —morning fine—wet fog and heavy showers during the day—wet night.
„	8th	6	30	54	8	30	54	12	0	54	..	..	....	..	..	....	6	30	59	8	30	59	12	0	58	..	..	....	..	..	....	Exceedingly heavy rain last night — wet day with heavy rain at intervals.
„	9th	6	30	53	9	0	54	12	30	57	4	30	56	8	30	55	6	30	58½	9	0	58	12	30	59	4	30	59	8	30	59	A wet day with heavy fog.
„	10th	6	0	54	8	0	57	12	30	60	..	..	....	9	30	55½	6	0	59	8	0	59	12	30	62	..	..	....	9	30	60	Fine morning—thin mist with sunshine in the forenoon—rain in the afternoon which became very heavy after dark.
„	11th	6	30	54	8	0	55	12	0	57	6	0	57	9	30	56	6	30	60	8	0	60	12	0	61	6	0	61	9	30	59½	Heavy showers with occasional sunshine during the day—wind and rain in the evening.
„	12th	6	0	54	8	0	60	12	0	60	5	30	59	9	0	57	6	0	59	8	0	59	12	0	61	5	30	62	9	0	61	Fine morning—cloudy and slight mist at noon—afternoon fine—heavy showers at night.
„	13th	6	0	56	8	0	58	12	30	60	5	0	59	8	30	56	6	0	61	8	0	60	12	30	62	5	0	62	8	30	61	Cloudy morning—fine forenoon — showery afternoon.
„	14th	6	30	56	8	0	58	12	30	57	..	..	....	9	0	55	6	30	61	8	0	61	12	30	61	..	..	....	9	0	61	Rain before daylight—fine forenoon—afternoon showers and fog, set in wet at night.
„	15th	6	0	55	8	0	56½	12	0	60	6	0	58	9	0	56	6	0	60	8	0	61	12	0	61	6	0	61	9	0	60	Morning showery—sunshine and light in the forenoon —fog and showers during the afternoon—night fine.
„	16th	5	0	53	8	0	62	12	0	68	4	0	60	9	0	56	5	0	60	8	0	60	12	0	63	4	0	62	9	0	61	Fine day, strong wind.

Register of the Thermometer taken at Kudaikarnal on the Pulni Mountains.—(Continued.)

Date.	In open Verandah.												In a room without a fire.												Remarks.
	Morning.			Noon.			Evening.						Morning.			Noon.			Evening.						
	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	Hours.	Minutes.	Degrees.	
1859.																									
Nov. 17th	6	0	53	8	0	55	12	30	60	6	0	57	9	0	56	6	0	60	8	0	60	12	30	61	.. ..	9	0	60½	Very strong wind in the morning, decreased towards noon—rain all the afternoon and great part of the night.
„ 18th	6	0	56	8	0	56	12	30	62	6	0	59	9	0	60	6	0	60	8	0	60	12	30	62	6 0 61	9	0	62	Wet night—wet and windy morning—foggy and wet during the day — wet evening.
„ 19th	6	0	58	9	0	56	1	30	57	5	0	56	8	30	54	6	0	62	9	0	61	1	30	60	5 0 60	8	30	59½	Blowing a gale and heavy rain, the rain continued all day—wind lulled towards noon.
„ 20th	6	30	53	8	0	56	12	30	59	5	0	57	9	30	54	6	30	59	8	0	59	12	30	61	5 0 61	9	30	59½	Wet showery night—dense fog in the morning, cleared up during the day.
„ 21st	5	0	53	8	0	56	12	0	58	5	0	55	8	30	53	5	0	59	8	0	58	12	0	60	6 0 60	8	30	58	Fine day with strong wind.
„ 22nd	6	0	51	8	0	53	12	0	57	5	30	54	8	30	54	6	0	58½	8	0	56	12	0	59	6 30 59	8	30	58	Fine morning and forenoon—cloudy afternoon—rain in the evening.
„ 23rd	5	30	53	8	0	61	1	30	59	4	30	58	9	0	57	5	30	57	8	0	59	1	30	61	4 30 61	9	0	59½	Very fine morning—drizzle at noon—rain in the evening—wet night.

,,	24th	5	30	55	8	0	60	12	0	59	6	0	57	9	0	57	5	30	60	8	0	59	12	0	61	6	0	61	9	0	60	Fine morning—showery at noon—rain in the evening —wet night.
,,	25th	5	30	55	9	0	57	12	0	59	5	0	55	9	0	54	5	30	60	9	0	60	12	0	61	5	0	60	9	0	58	Heavy rain in the forenoon —afternoon fine.
,,	26th	6	0	56	8	0	61	..	..	....	..	..	....	..	..	....	6	0	61	8	0	60	..	..	....	..	..	....	..	..	.....	Sunshiny morning.
,,	27th	6	0	54	8	0	61	12	0	60	6	0	58	9	0	57	6	0	60	8	0	60	12	0	63	6	0	63	9	0	61	Morning fine with sunshine—thick fog at noon—fine afternoon.
,,	28th	6	0	56	8	0	61	12	0	59	..	..	....	9	0	56	6	0	61	8	0	60	12	0	62	..	..	....	9	0	61	Drizzly morning—fine, but windy day.
,,	29th	6	30	56	8	0	58	12	0	59	..	..	....	9	0	59	6	30	61	8	0	60	12	0	61	..	..	....	9	0	60½	Cloudy morning—fog at noon with occasional sunshine—wet afternoon and night.
,,	30th	5	30	56	8	0	61	12	30	59	..	..	....	9	0	58	5	30	61	8	0	60	12	30	61	..	..	....	9	0	60½	Fine morning—slight showers at noon and afternoon.
Dec.	1st	6	0	56	8	0	59	12	0	59	..	..	....	9	0	57	6	0	60	8	0	60	12	0	61	..	..	....	9	0	60	Clouds and fog but no rain —afternoon fine.
,,	2nd	5	30	54	8	0	62	12	0	59	6	0	57	9	0	54	5	30	59	8	0	59	12	0	61	5	0	61	9	0	59	Morning fine with bright sunshine—mist at noon —dense fog in afternoon.
,,	3rd	5	30	53	8	0	57	12	30	58	..	..	....	..	..	....	5	30	58	8	0	59	12	0	59½	..	..	....	..	..	.....	Morning fine—clouds and fog during the day.
,,	4th	7	0	56	9	0	55	2	0	58	5	0	57	9	0	55	7	0	57	9	0	58	2	0	59	5	0	59	9	0	58	Morning fine—stormy clouds —mist at noon—afternoon fine.
,,	5th	5	30	51	8	0	57	12	0	56	4	0	58	..	..	....	5	30	57	8	0	59	12	0	58	4	0	59	..	..	....	Fog and mist with occasional sunshine.
,,	6th	5	30	52	8	0	61	12	0	59	..	..	....	9	0	55	5	30	57½	8	0	59	12	0	60	..	..	....	9	0	59	Bright sunshiny morning—looked stormy at noon, but no rain fell.
,,	7th	6	0	52	8	0	54	12	30	56	4	30	56	9	0	54	6	0	58	8	0	57	12	30	57½	4	30	58	9	0	58	Fog nearly all day.
,,	8th	5	0	52	8	0	55	—	..	....	3	0	58	8	0	54	5	0	57	8	0	57	..	..	....	3	0	59	..	..	....	Fine morning—mist and fog during the day.

NOTE.—These observations were made with two ordinary Thermometers, one placed in the outer verandah of Mr. Clarke's house with a north-easterly aspect, and the other inside a room on the western side of the house. The house being situated close to the edge of the Ghaut is oftener enveloped in mists than other houses of the settlement.

Register of the Thermometer taken at Kudaikarnal on the Pulni Mountains in open verandah facing the North-east.

Date:	Morning.				Noon.		Evening.				Remarks.
	Hours.	Degrees.	Hours.	Degrees.	Hours.	Degrees.	Hours.	Degrees.	Hours.	Degrees.	
1859.											
December 9th	6	54°	8	58°	12	60°	...	.....	...	.....	
,, 10th	...	.....	...	.....	12	58°	4	58°	8	56°	
,, 11th	6	54°	8	55°	12	55°	4	56°	8	54°	
,, 12th	6	54°	8	55°	12	56°	4	58°	8	60°	
,, 13th	6	52°	8	58°	12	58°	4	58°	8	54°	
,, 14th	6	50°	8	55°	12	58°	4	58°	8	54°	
,, 15th	6	54°	8	58°	12	58°	4	52°	8	52°	
,, 16th	6	58°	8	58°	12	59°	4	56°	8	55°	
,, 17th	6	50°	8	54°	12	54°	4	54°	8	52°	
,, 18th	6	51°	8	54°	12	56°	4	56°	8	54°	
,, 19th	6	53°	8	55°	12	56°	4	57°	8	54°	
,, 20th.....	6	54°	8	56°	12	56°	...	.....	8	55°	
,, 21st	6	54°	8	57°	12	58°	4	56°	8	54°	
,, 22nd.....	6	52°	8	60°	12	61°	4	56°	8	52°	

This Register was taken by a Native whom I had carefully instructed in reading the Thermometer

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